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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/555,422	10/21/2005	Andreas Schilling	1093-140 PCT/US	4508

7590
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01/13/2009

EXAMINER

VARGOT, MATHIEU D

ART UNIT	PAPER NUMBER
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1791

MAIL DATE	DELIVERY MODE
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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/555,422	Applicant(s) SCHILLING ET AL.	
	Examiner Mathieu D. Vargot	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/21/05, 9/11/06 & 6/20/08</u> . | 6) <input type="checkbox"/> Other: ____. |

1. Claims 2 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 2, the “preferably...” clause in the last line renders the scope of the claim indefinite in that it is unclear whether the recitation in the clause is in fact a limitation in the claim. Such recitations should be set forth in separate dependent claims. In claim 9, line 2, “one of the light-scattering matt structures” lacks antecedent basis and such should be clearly recited in claim 1.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cowan et al in view of Japanese Patent 8-137,375 and further in view of German document 100 28 426 or German document 100 28 426 in view of Cowan et al and Japanese Patent 8-137,375.

Cowan et al discloses a method of forming light-diffracting microstructures in a layer of photoresist on a substrate including the instant steps c), d) (see col. 1, lines 52-56), e) and f) of instant claim 1. See column 1 in its entirety and col. 2, line 56 through col. 3, line 19 in particular. Essentially, Cowan et al fails to explicitly teach drying the photoresist after development and producing the light-diffracting microstructures—ie, a second relief structure—on a first relief structure already formed on the photoresist.

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Concerning the former, the etchants typically used to develop photoresists are liquids—acids-- and one of ordinary skill in this art would realize that the resists would need to be dried after contact therewith. Hence, the instant drying step is submitted to be well known in the art and an obvious modification to the method of Cowan et al to remove traces of the developing liquid from the resist. Concerning the latter, Japanese -375 discloses forming a relief structure on a photoresist by structuring the resist using a die and then removing the die prior to curing the resist. It would have been obvious to one of ordinary skill in the art to have modified the method of Cowan et al by forming the light-diffracting structures on a first relief structure formed as taught by Japanese -375 dependent on the exact surface relief structures desired. German -426 provides the motivation for this, disclosing a method of making a coarse structured pattern on a photoresist followed by forming a fine structure thereon by interference of an exposure beam. The cross-grating disclosed in the USE section of the abstract would involve the rotation of the photoresist 90 degrees.

Alternately, German -426 can be taken as the primary reference, disclosing the basic claimed method of forming a coarse structured pattern on a photoresist followed by forming a fine structure thereon by interference of an exposure beam, with the cross-grating disclosed in the USE section of the abstract involving the rotation of the photoresist 90 degrees. German -426 would be lacking the particulars of how the coarse pattern is formed and how the fine pattern is formed. As pointed out supra, Cowan et al would teach how to form the fine pattern by interference of the exposure beam and Japanese -375 would teach the formation of the coarse pattern by

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die embossing. It would have been obvious to one of ordinary skill in the art to employ the techniques taught in Cowan et al and Japanese -375 in the process of German -426 as such are conventional methods by which fine and coarse structures would be formed in a photoresist. The physical features of the grating—depth and line spacing—would have been within the skill level of the art dependent on the exact optical effect desired for the fine structure.

3.Applicant is requested to provide an English language equivalent or translation of pertinent sections of German document DE 100 28 426 if such is readily available, since this document appears to be relevant to the claims.

4.Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mathieu D. Vargot whose telephone number is 571 272-1211. The examiner can normally be reached on Mon-Fri from 9 to 6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson, can be reached on 571 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

M. Vargot
January 10, 2009

/Mathieu D. Vargot/
Primary Examiner, Art Unit 1791